Zdravko Botev, UNSW, Australia

Simulation in high-dimensions via Regenerative Monte Carlo splitting

Abstract

Simulation of random variables from a high-dimensional target pdf is typically a difficult task, and typically only feasible via approximate Markov Chain Monte Carlo. In this talk we show that a logarithmically efficient splitting method for rare-event simulation can also simulate from a target pdf with total variation error that decays polynomially over sets with finite Vapnik-Chervonenkis dimension. We thus provide link between large-deviations efficiency concepts and the error in approximate sampling from intractable distributions. The key tools used in the analysis are regeneration and a tight maximal inequality for Orlicz norms.